

## Gunter, Jason

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**From:** Nations, Mark <mnations@doerun.com>  
**Sent:** Tuesday, February 11, 2014 9:17 AM  
**To:** Gunter, Jason  
**Cc:** Yingling, Mark; Wohl, Matthew; robert.hinkson@dnr.mo.gov; brandon.wiles@dnr.mo.gov; Ty Morris (TMorris@barr.com); Sanders, Amy B.; Cummings, Mark  
**Subject:** Leadwood January 2014 Progress Report  
**Attachments:** LW\_01-14[1].doc; 2014-01-23 LW NPDES Pace Lab Report.pdf; 2014-01-28 LW NPDES SS Pace Lab Report.pdf; LW\_01-14[1].doc  
  
**Categories:** Red Category

Jason,  
Attached is the January report. Let me know if you have questions.  
Mark

OTCR

40482398



Superfund

4.2

duo2

**THE  
DOE RUN  
COMPANY**

*Remediation Group*

**Mark Nations**  
**Mining Properties Manager**  
***mnations@doerun.com***

February 10, 2014

Mr. Jason Gunter  
Remedial Project Manager  
U.S. Environmental Protection Agency  
Region 7 - Superfund Branch  
11201 Renner Blvd.  
Lenexa, KS 66219

**Re: The Doe Run Company - Leadwood Mine Tailings Site Monthly Progress Report**

Dear Mr. Gunter:

As required by Article VI, Section 50 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0272) for the referenced project and on behalf of The Doe Run Company, the progress report for the period January 1, 2014 through January 31, 2014 is enclosed. If you have any questions or comments, please call me at 573-518-0800.

Sincerely,



Mark Nations  
Mining Properties Manager

Enclosures

- c: Mark Yingling – TDRC (electronic only)
- Matt Wohl – TDRC (electronic only)
- Robert Hinkson – MDNR
- Brandon Wiles – MDNR
- Ty Morris – Barr Engineering

**Leadwood Mine Tailings Site**  
Leadwood, Missouri  
**Removal Action - Monthly Progress Report**  
Period: January 1, 2014 – January 31, 2014

**1. Actions Performed or Completed This Period:**

- a. None.

**2. Data and Results Received This Period:**

- a. During this period, water samples were collected from downstream of Leadwood Dam and the East Seep and Erosion Area, as well as from upstream and downstream of the confluence of Eaton Creek with Big River. The analytical results for this event are included with this progress report.

**3. Scheduled Activities not Completed This Period:**

- a. None.

**4. Planned Activities for Next Period:**

- a. Continue vegetation maintenance activities. The use of biosolids will only be continued if a biosolids management plan has been submitted to and approved by EPA.
- b. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- c. Complete air monitoring activities as described in the Removal Action Work Plan.

**5. Changes in Personnel:**

- a. None.

**6. Issues or Problems Arising This Period:**

- a. None.

**7. Resolution of Issues or Problems Arising This Period:**

- a. None.



Pace Analytical Services, Inc.  
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Lenexa, KS 66219  
(913)599-5665

January 31, 2014

Amy Sanders  
The Doe Run Company  
P. O. Box 500  
Viburnum, MO 65566

RE: Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

Dear Amy Sanders:

Enclosed are the analytical results for sample(s) received by the laboratory on January 24, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church  
jamie.church@pacelabs.com  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

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### Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219  
WY STR Certification #: 2456.01  
Arkansas Certification #: 13-012-0  
Illinois Certification #: 003097  
Iowa Certification #: 118  
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055  
Nevada Certification #: KS000212008A  
Oklahoma Certification #: 9205/9935  
Texas Certification #: T104704407-13-4  
Utah Certification #: KS000212013-3  
Illinois Certification #: 003097

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## SAMPLE SUMMARY

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60161861001	LEADWOOD 001	Water	01/23/14 12:36	01/24/14 08:45
60161861002	LEADWOOD 002	Water	01/23/14 12:46	01/24/14 08:45
60161861003	LEADWOOD UPSTREAM	Water	01/23/14 12:17	01/24/14 08:45
60161861004	LEADWOOD DOWNSTREAM	Water	01/23/14 11:54	01/24/14 08:45

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### SAMPLE ANALYTE COUNT

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60161861001	LEADWOOD 001	EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60161861002	LEADWOOD 002	EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60161861003	LEADWOOD UPSTREAM	EPA 200.7	NDJ	6	PASI-K
		EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60161861004	LEADWOOD DOWNSTREAM	EPA 200.7	NDJ	6	PASI-K
		EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K

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## ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60161861

Sample: LEADWOOD 001      Lab ID: 60161861001      Collected: 01/23/14 12:36      Received: 01/24/14 08:45      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b> Analytical Method: EPA 200.7      Preparation Method: EPA 200.7									
Cadmium	4.9J	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:26	7440-43-9	
Lead	21.0	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:26	7439-92-1	
Zinc	4650	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:26	7440-66-6	
<b>2540D Total Suspended Solids</b> Analytical Method: SM 2540D									
Total Suspended Solids	6.0	mg/L	5.0	5.0	1		01/28/14 16:11		
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Sulfate	372	mg/L	50.0	2.8	50		01/29/14 13:40	14808-79-8	

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## ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60161861

<b>Sample: LEADWOOD 002</b>		<b>Lab ID: 60161861002</b>	Collected: 01/23/14 12:46		Received: 01/24/14 08:45		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Cadmium	6.0	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:28	7440-43-9	
Lead	8.4	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:28	7439-92-1	
Zinc	6900	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:28	7440-66-6	
<b>2540D Total Suspended Solids</b>		Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:13		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Sulfate	475	mg/L	50.0	2.8	50		01/29/14 14:24	14808-79-8	

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## ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60161861

Sample: LEADWOOD UPSTREAM Lab ID: 60161861003 Collected: 01/23/14 12:17 Received: 01/24/14 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b> Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:30	7440-43-9	
Calcium	34700	ug/L	100	10.4	1	01/28/14 17:00	01/29/14 12:30	7440-70-2	
Lead	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:30	7439-92-1	
Magnesium	20700	ug/L	50.0	6.5	1	01/28/14 17:00	01/29/14 12:30	7439-95-4	
Total Hardness by 2340B	172000	ug/L	500		1	01/28/14 17:00	01/29/14 12:30		
Zinc	ND	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:30	7440-66-6	
<b>200.7 Metals, Dissolved (LF)</b> Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium, Dissolved	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 13:37	7440-43-9	
Lead, Dissolved	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 13:37	7439-92-1	
Zinc, Dissolved	10.8J	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 13:37	7440-66-6	
<b>2540D Total Suspended Solids</b> Analytical Method: SM 2540D									
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:13		
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Sulfate	14.7	mg/L	2.0	0.11	2		01/29/14 14:38	14808-79-8	

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## ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60161861

**Sample: LEADWOOD**      **Lab ID: 60161861004**      Collected: 01/23/14 11:54      Received: 01/24/14 08:45      Matrix: Water  
**DOWNSTREAM**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b> Analytical Method: EPA 200.7      Preparation Method: EPA 200.7									
Cadmium	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:33	7440-43-9	
Calcium	36300	ug/L	100	10.4	1	01/28/14 17:00	01/29/14 12:33	7440-70-2	
Lead	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:33	7439-92-1	
Magnesium	21300	ug/L	50.0	6.5	1	01/28/14 17:00	01/29/14 12:33	7439-95-4	
Total Hardness by 2340B	179000	ug/L	500		1	01/28/14 17:00	01/29/14 12:33		
Zinc	15.9J	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:33	7440-66-6	
<b>200.7 Metals, Dissolved (LF)</b> Analytical Method: EPA 200.7      Preparation Method: EPA 200.7									
Cadmium, Dissolved	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 13:39	7440-43-9	
Lead, Dissolved	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 13:39	7439-92-1	
Zinc, Dissolved	40.4J	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 13:39	7440-66-6	
<b>2540D Total Suspended Solids</b> Analytical Method: SM 2540D									
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:14		
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Sulfate	19.9	mg/L	5.0	0.28	5		01/29/14 14:52	14808-79-8	

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## QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

QC Batch: MPRP/26007 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
Associated Lab Samples: 60161861001, 60161861002, 60161861003, 60161861004

METHOD BLANK: 1322792 Matrix: Water  
Associated Lab Samples: 60161861001, 60161861002, 60161861003, 60161861004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	ug/L	ND	5.0	01/29/14 12:01	
Calcium	ug/L	ND	100	01/29/14 12:01	
Lead	ug/L	ND	5.0	01/29/14 12:01	
Magnesium	ug/L	ND	50.0	01/29/14 12:01	
Total Hardness by 2340B	ug/L	ND	500	01/29/14 12:01	
Zinc	ug/L	ND	50.0	01/29/14 12:01	

LABORATORY CONTROL SAMPLE: 1322793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	1000	992	99	85-115	
Calcium	ug/L	10000	9800	98	85-115	
Lead	ug/L	1000	1020	102	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Total Hardness by 2340B	ug/L		66400			
Zinc	ug/L	1000	996	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322794 1322795

Parameter	Units	60161839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1010	1010	101	101	70-130	0	10
Calcium	ug/L	104000	10000	10000	112000	113000	81	84	70-130	0	9
Lead	ug/L	7.3	1000	1000	991	989	98	98	70-130	0	10
Magnesium	ug/L	57200	10000	10000	66300	66600	91	94	70-130	1	9
Total Hardness by 2340B	ug/L	496000			554000	556000				0	
Zinc	ug/L	159	1000	1000	1140	1130	98	97	70-130	1	11

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322796 1322797

Parameter	Units	60161892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1060	1060	106	106	70-130	0	10
Calcium	ug/L	54.6 mg/L	10000	10000	63500	63600	90	90	70-130	0	9
Lead	ug/L	ND	1000	1000	950	951	95	95	70-130	0	10
Magnesium	ug/L	399 mg/L	10000	10000	404000	403000	53	43	70-130	0	9 M1

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## QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60161861

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322796 1322797												
Parameter	Units	60161892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
Total Hardness by 2340B	ug/L	1780			1820000	1820000				0		
		mg/L										
Zinc	ug/L	ND	1000	1000	979	976	98	98	70-130	0	11	

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# QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60161861

QC Batch: MPRP/26023

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Dissolved

Associated Lab Samples: 60161861003, 60161861004

METHOD BLANK: 1323393

Matrix: Water

Associated Lab Samples: 60161861003, 60161861004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	ND	5.0	01/29/14 13:14	
Lead, Dissolved	ug/L	ND	5.0	01/29/14 13:14	
Zinc, Dissolved	ug/L	ND	50.0	01/29/14 13:14	

LABORATORY CONTROL SAMPLE: 1323394

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	1000	1040	104	85-115	
Lead, Dissolved	ug/L	1000	1050	105	85-115	
Zinc, Dissolved	ug/L	1000	1020	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1323395 1323396

Parameter	Units	60161839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	ND	1000	1000	1040	1050	104	105	70-130	1	10	
Lead, Dissolved	ug/L	4.1J	1000	1000	1030	1030	102	102	70-130	0	10	
Zinc, Dissolved	ug/L	131	1000	1000	1130	1140	100	100	70-130	1	11	

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### QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

QC Batch: WET/45839 Analysis Method: SM 2540D  
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids  
Associated Lab Samples: 60161861001, 60161861002, 60161861003, 60161861004

METHOD BLANK: 1323386 Matrix: Water  
Associated Lab Samples: 60161861001, 60161861002, 60161861003, 60161861004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	01/28/14 16:08	

SAMPLE DUPLICATE: 1323387

Parameter	Units	60161715002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	5.0	5.0	0	10	

SAMPLE DUPLICATE: 1323388

Parameter	Units	60161861002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

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### QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)  
 Pace Project No.: 60161861

QC Batch: WETA/27971 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60161861001, 60161861002, 60161861003, 60161861004

METHOD BLANK: 1323269 Matrix: Water  
 Associated Lab Samples: 60161861001, 60161861002, 60161861003, 60161861004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	01/29/14 12:14	

LABORATORY CONTROL SAMPLE: 1323270

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1323271 1323272

Parameter	Units	60161509001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	3570	2500	2500	5990	5980	97	96	80-120	0	15	

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## QUALIFIERS

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-K Pace Analytical Services - Kansas City

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NPDES MONTHLY (LEADWOOD)  
Pace Project No.: 60161861

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60161861001	LEADWOOD 001	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161861002	LEADWOOD 002	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161861003	LEADWOOD UPSTREAM	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161861004	LEADWOOD DOWNSTREAM	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161861003	LEADWOOD UPSTREAM	EPA 200.7	MPRP/26023	EPA 200.7	ICP/19907
60161861004	LEADWOOD DOWNSTREAM	EPA 200.7	MPRP/26023	EPA 200.7	ICP/19907
60161861001	LEADWOOD 001	SM 2540D	WET/45839		
60161861002	LEADWOOD 002	SM 2540D	WET/45839		
60161861003	LEADWOOD UPSTREAM	SM 2540D	WET/45839		
60161861004	LEADWOOD DOWNSTREAM	SM 2540D	WET/45839		
60161861001	LEADWOOD 001	EPA 300.0	WETA/27971		
60161861002	LEADWOOD 002	EPA 300.0	WETA/27971		
60161861003	LEADWOOD UPSTREAM	EPA 300.0	WETA/27971		
60161861004	LEADWOOD DOWNSTREAM	EPA 300.0	WETA/27971		

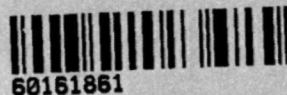
### REPORT OF LABORATORY ANALYSIS

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## Sample Condition Upon Receipt

WO#: 60161861



797767743188

Client Name: Doe RunCourier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐Tracking #: 569915793954 Pace Shipping Label Used? Yes ☐ No ☒Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other NoneThermometer Used: T-239 / T-194 Type of Ice: Wet Blue ☐ None ☐ Samples received on ice, cooling process has begun.Cooler Temperature: 0.6Date and initials of person examining contents: 8/24/14

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody filled out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler name & signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>Sett Sol</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. <u>No volume for Sett Sol</u>
Containers intact:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Unpreserved 5035A soils frozen w/in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Sample labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Includes date/time/ID/analyses	Matrix: <u>wt</u>	15.
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	17.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Trip Blank present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Lot # of added preservative
Pace Trip Blank lot # (if purchased):		
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17. List State

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Per Amy Sanders, Settleable Solids will be recollected. 1/24/14 JLC

Project Manager Review: \_\_\_\_\_

Date

1/24/14







Pace Analytical Services, Inc.  
9608 Loiret Blvd.  
Lenexa, KS 66219  
(913)599-5665

February 04, 2014

Amy Sanders  
The Doe Run Company  
P. O. Box 500  
Viburnum, MO 65566

RE: Project: NPDES Monthly (Leadwood)  
Pace Project No.: 60162285 REVISION, REV-1 2/4/14

Dear Amy Sanders:

Enclosed are the analytical results for sample(s) received by the laboratory on January 31, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church  
jamie.church@pacelabs.com  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219

(913)599-5665

## CERTIFICATIONS

Project: NPDES Monthly (Leadwood)

Pace Project No.: 60162285

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### Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 13-012-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407-13-4

Utah Certification #: KS000212013-3

Illinois Certification #: 003097

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## SAMPLE SUMMARY

Project: NPDES Monthly (Leadwood)

Pace Project No.: 60162285

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60162285001	LEADWOOD 001	Water	01/28/14 09:30	01/31/14 09:00
60162285002	LEADWOOD 002	Water	01/28/14 09:40	01/31/14 09:00

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### SAMPLE ANALYTE COUNT

Project: NPDES Monthly (Leadwood)  
Pace Project No.: 60162285

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60162285001	LEADWOOD 001	SM 2540F	JML	1	PASI-K
60162285002	LEADWOOD 002	SM 2540F	JML	1	PASI-K

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## ANALYTICAL RESULTS

Project: NPDES Monthly (Leadwood)

Pace Project No.: 60162285

<b>Sample: LEADWOOD 001</b>		<b>Lab ID: 60162285001</b>	Collected: 01/28/14 09:30		Received: 01/31/14 09:00		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540F Total Settleable Solids</b>		Analytical Method: SM 2540F							
Total Settleable Solids	ND	mL/L/hr	0.20	0.20	1		01/31/14 16:20		

## REPORT OF LABORATORY ANALYSIS

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Date: 02/04/2014 11:47 AM

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## ANALYTICAL RESULTS

Project: NPDES Monthly (Leadwood)

Pace Project No.: 60162285

<b>Sample: LEADWOOD 002</b>		<b>Lab ID: 60162285002</b>	Collected: 01/28/14 09:40		Received: 01/31/14 09:00		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540F Total Settleable Solids</b>									
Analytical Method: SM 2540F									
Total Settleable Solids	ND	mL/L/hr	0.20	0.20	1		01/31/14 16:20		

## REPORT OF LABORATORY ANALYSIS

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Date: 02/04/2014 11:47 AM

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## QUALIFIERS

Project: NPDES Monthly (Leadwood)

Pace Project No.: 60162285

---

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for; but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

PASI-K Pace Analytical Services - Kansas City

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NPDES Monthly (Leadwood)

Pace Project No.: 60162285

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60162285001	LEADWOOD 001	SM 2540F	WET/45920		
60162285002	LEADWOOD 002	SM 2540F	WET/45920		

### REPORT OF LABORATORY ANALYSIS

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## Sample Condition Upon Receipt

WO#: 60162285



60162285

Client Name: DRCCourier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐Tracking #: 79775669679Pace Shipping Label Used? Yes ☐ No ☒Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☒ 2 PICThermometer Used: T-239 / T-194Type of Ice: Wet Blue ☐ None ☐ Samples received on ice, cooling process has begun.  
(circle one)Cooler Temperature: 0.6Date and initials of person examining contents: 2/1/14

Temperature should be above freezing to 6°C

Chain of Custody present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody filled out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	2. <u>No COC</u>
Chain of Custody relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	3.
Sampler name & signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>??</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8. <u>Leadwood 001 - 1/28/14 0930 1BPIU</u>
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>Leadwood 002 - ↓ 0940 ↓</u>
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. <u>Rivermines 001 - ↓ 0845 ↓</u>
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. <u>National East - 1/28/14 0900 1AG35</u>
Unpreserved 5035A soils frozen w/in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.
Sample labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Includes date/time/ID/analyses Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot # of added preservative
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17. List State

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: Per Amy Sanders, collection date and time on COC is incorrect. Should be 1/28/14 at 9:30am for Leadwood 001 and 1/28/14 at 9:40am for Leadwood 002. JLC 2/4/14

Project Manager Review: mw hedgesDate: 2/1/14

